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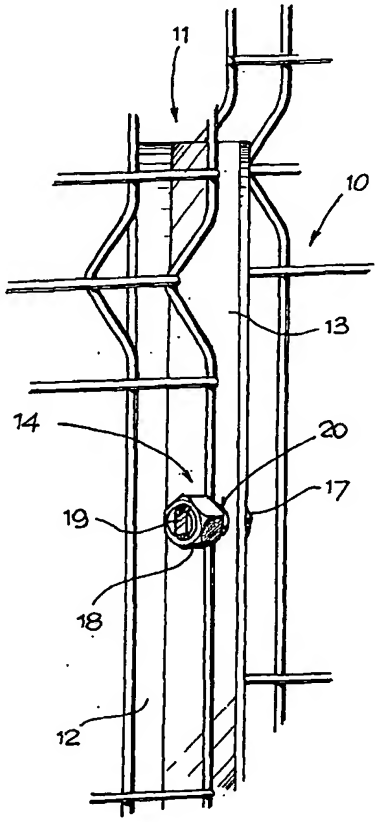
(54) Title: CONNECTION SYSTEM BETWEEN ELECTRICALLY WELDED PANELS AND SUPPORTING POLES PARTICULARLY FOR ENCLOSURES



(57) Abstract: The present finding relates to a system for fixing panels consisting of arc welded bars to support poles, particularly but not exclusively for fencings, wherein into said poles there is obtained at least one thorough hole (20) comprising a screw (15) having a threaded stem (16) crossed centrally and for its entire length by a longitudinal thorough slit (19), and a nut (18) intended to screw on said threaded stem, said slit being intended to receive the bars of two adjacent panels.

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"CONNECTION SYSTEM BETWEEN ELECTRICALLY WELDED PANELS AND SUPPORTING POLES PARTICULARLY FOR ENCLOSURES"

DESCRIPTION

The present finding relates to the sector of fencings or enclosures or other structures using panels consisting of arc welded bars in general, and in particular it refers to a system for fixing said panels to support poles.

At present, the fixing of the panels to the support poles is made by constraining the end bar to a side of the pole, which usually exhibits a T, H, cross or tubular-shaped section, by plaques, locking joints or similar supports, screwed by bolts or applied in another way to the pole. The fixing system is usually exposed to view and therefore for aesthetic reasons, it is hidden by covering elements. The number of elements used and the time required for installing the fencing or similar structure are therefore considerable and significantly affect the overall system cost.

Object of the present finding is that of proposing a system for fixing panels consisting of arc welded bars to support poles of a simpler structure, consisting of a reduced number of elements, and which therefore allows a quicker and easier installation of the structure made up of said panels.

Another object of the finding is that of providing a system for fixing arc welded panels to support poles which should allow realising fencings or similar structures wherein adjacent panels can form an angle with one another or can be fixed at different heights, for example step walls.

These and other objects and advantages of the finding are achieved by a system for fixing panels made up of arc welded bars to support poles conforming with claim 1.

An example of embodiment of the finding will be described in more detail hereinafter with reference to the attached indicative and non-limiting drawings, wherein:

- Fig. 1 shows a prospective exploded view of the fixing system under discussion;

- Fig. 2 shows a first example of use of the system for fixing arc welded panels to a support pole;

- Figs. 3 and 4 show to example of application of the fixing system similar to that of the previous Figure, where the panels fixed to the pole form an angle with one another and are at different heights, respectively.

In said drawings, reference numeral 10 indicates panels consisting of arc welded bars 10'. The panels are adapted for being fixed to support poles 11 that

generally exhibit a T, H, cross, square or similar section, that is, they consist of at least one front plate element 12 and of at least one transversal plate element 13.

The system proposed for fixing panels 10 to poles 11 is shaped as a bolt 14 consisting of a screw 15 with threaded stem 16 and polygonal head 17, and of a relevant nut 18. According to the finding, stem 16 of the screw is crossed centrally and for its entire length by a longitudinal thorough slit 19 having width at least equal to the diameter or the side size of bars 10' of panels 10. The slit can partly affect also the head 17 of the screw.

The transversal plate element 13 of poles 11 is crossed by at least one hole 20 wherein the screw 15 is intended to be introduced.

The fixing of the panels to the poles therefore occurs by introducing the end bar 10' of a panel 10 into slit 19 of the screw, making the latter pass through the relevant hole 20 into the pole, introducing the end bar 10' of another optional panel adjacent pole 11 into slit 19 and tightening the whole by nut 18. With a single bolt 14 it is therefore possible to fix two panels 10 to a common pole 11. The fixing, moreover, occurs on the transversal element 13 of the pole, therefore behind the

front element 12, without needing additional covering elements to hide the connection from view. In case of rectangular-section poles, the two opposed transversal sides should have aligned holes, and stem 16 of screw 15 should of course exhibit such length as to cross the pole by its entire length.

The system proposed allows bars 10' passing into slit 19 of the bolt, and therefore the relevant panels, to take any angular or height position before the final tightening by the nut, as shown in Figures 3 and 4. In this way, the fencings made up of panels 10 can exhibit angles and be applied to step walls. By sizing bolt 14 and slit 19 so as to receive two superimposed panels, it is also possible to connect double fencings so as to support loads according to the ministerial standards.

Moreover, in case of cross poles, and thanks to the possibility of turning the bolt in any position, it is also possible to realised structures closed on top, such as for example cages for dogs, gazebo and the like.

It should be noted that in place of a normal bolt it is possible to use a bolt with anti-tear head and nut without departing from the scope of the finding.

Finally, it has been proven that with a bolt of the type described herein, two panels can be permanently connected to one another without the need of fixing them

to a common pole.

CLAIMS

1. System for fixing panels consisting of arc welded bars to support poles, particularly but not exclusively for fencings, where in said poles there is obtained at least one thorough hole (20), characterised in that it comprises a screw (15) having a threaded stem (16) crossed centrally and for its entire length by a longitudinal thorough slit (19) and a nut (18) intended to screw on said threaded stem, the stem and the relevant pitch exhibiting such width and length as to allow the introduction of an end bar of a first panel into the slit, the stem passage through the hole in the pole, the introduction of an end bar of an optional second panel adjacent to the first one into the slit, and the tightening of the nut for locking the two panels to the pole.

2. Fixing system according to claim 1, wherein the poles exhibit at least one plate element (13), orthogonal or in any case, non-parallel to the plane of the panels, and wherein the threaded stem with the slit passes through a hole (20) obtained into said plate element.

3. Fixing system according to claim 1 or 2, wherein the screw exhibits a head (17) and the slit in the threaded stem partly extends also in said head.

4. Fixing system according to claim 2 or 3, wherein the

pole exhibits a rectangular section ant at least one pair of aligned holes obtained on two opposed sides, and wherein the threaded stem of the screw exhibits such length as to pass through both said holes for fixing a first panel to one of said sides and a second panel to the opposed side.

5. Fixing system according to any one of the previous claims, wherein the slit in the screw stem exhibits such width as to receive the bars of two or more superimposed panels.

6. Fixing system according to any one of the previous claims, wherein the head of the screw and/or the nut are of the anti-tear type.

7. Fixing system according to any one of the previous claims, wherein before the final locking of a panel to a relative pole by the nut, the bar of the panel passing into the slit is free to move angularly and/or axially for realising fencings or similar structures provided with angles and/or steps.

8. System for fixing arc welded panels to support poles, particularly for fencings, substantially as described, illustrated and claimed above for the specified purposes.

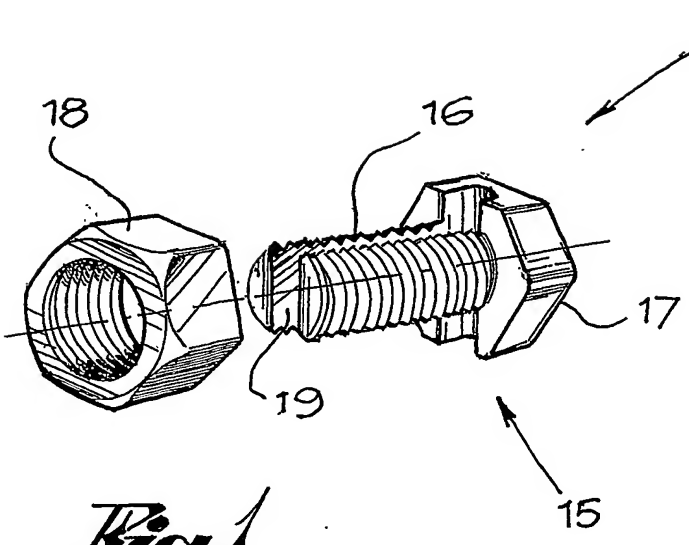

Fig.1

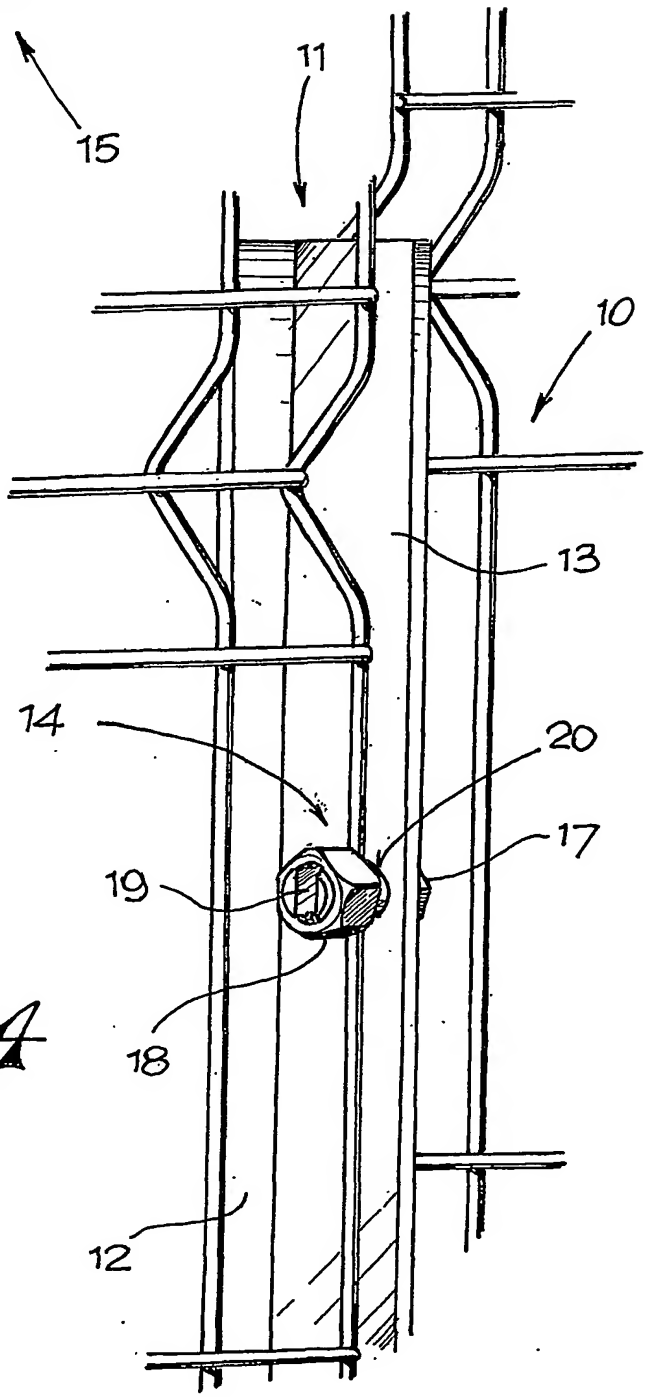

Fig.4

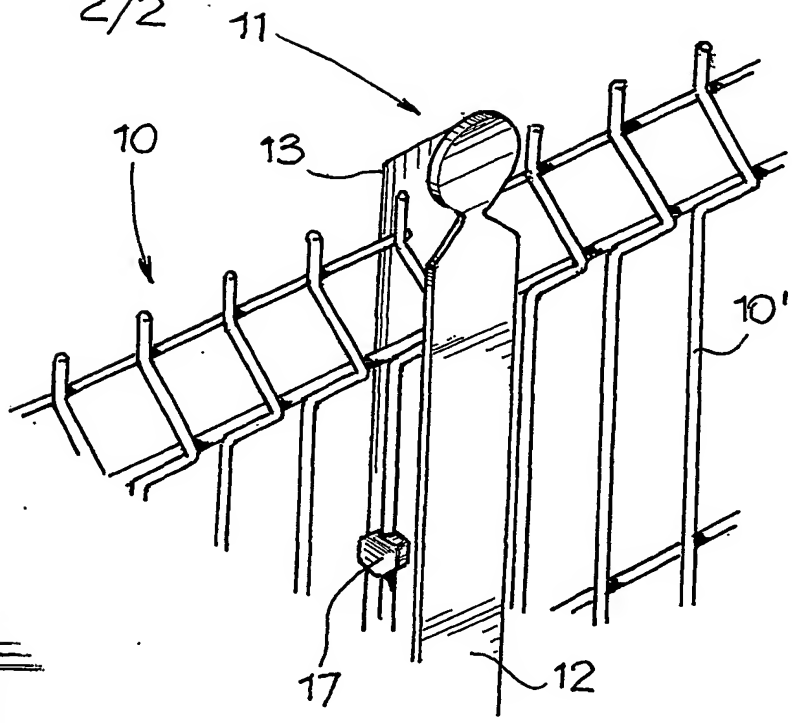

Fig.2

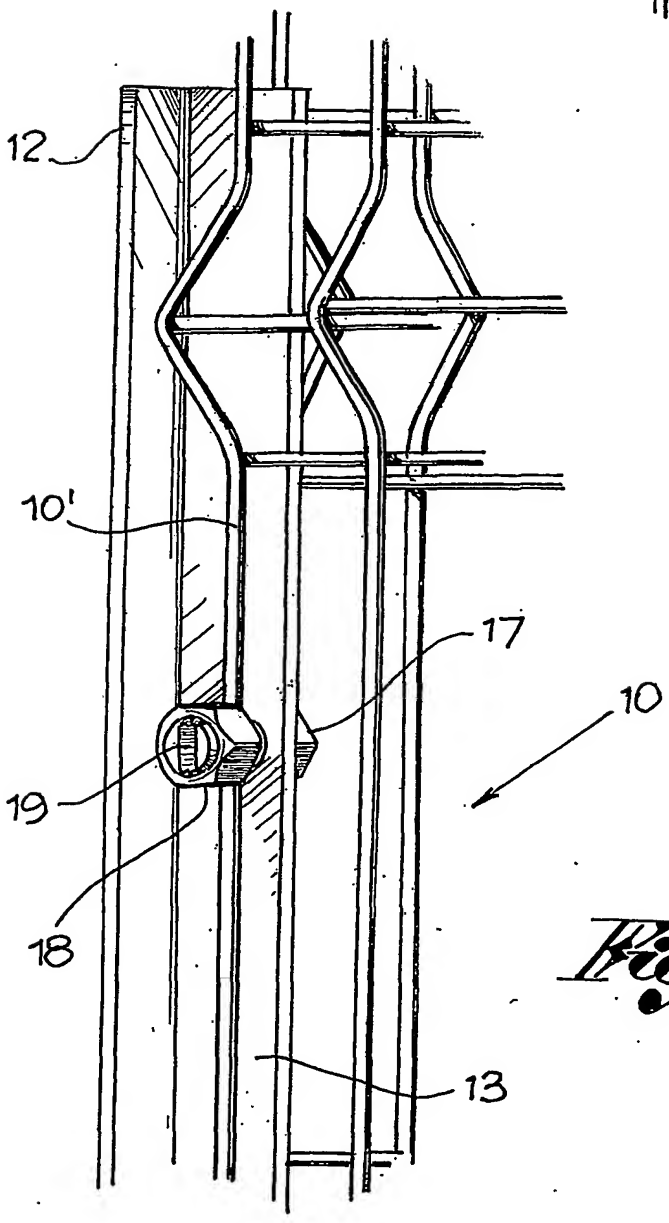

Fig.3

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 E04H17/10 E04H17/12

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 E04H F16B A01K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 01 83916 A (FELGEN FERNAND ;TREFILARBED BISSEN S A (LU)) 8 November 2001 (2001-11-08) page 8, line 27 -page 9, line 21; figures 4A-5	1,5,7,8
A	GB 2 250 757 A (TINSLEY WIRE) 17 June 1992 (1992-06-17) page 3, line 13 -page 4, line 14; figures 1,3-5	1,2,4,6, 8
A	US 4 098 493 A (LOGAN ZACK H) 4 July 1978 (1978-07-04) the whole document	1,2,4,6, 8

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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"E" earlier document but published on or after the international filing date
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"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA	Authorized officer
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 35 21 453 A (GALLAGHER ELECTRONICS LTD) 16 January 1986 (1986-01-16) page 3, line 33 -page 5, line 24; figures 1-5	3,6,7

INTERNATIONAL SEARCH REPORT

Information on patent family members

Application No
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